2.4 Qtopia 2.2.0 Linux Graphical Interface System (Pre-Installed)

Description: Qtopia 2.2.0 is a Qt-based developed on Qt/Embedded 2.3 database PDA version (also the final version) map shaped interface system; since after Qtopia 2.2.0, Qt companies no longer provide PDA version of the graphics system. The latest version the only mobile phone version of Qtopia and Qt company since the beginning of 2009.3 has been discontinued for all version of Qtopia PDA and mobile phone authorized version of the graphics system, but still continue to develop Qt/Embedded library system.

Before the factory, the development board is generally a pre-installed Linux + Qtopia 2.2.0 graphical interface, it contains a lot of practical small procedure to get the development board, you just plug in the power and boot on the functional tests can be carried out, which does not require any connected computer.

If you are using a VGA output module connected to the display, also need to prepare for the mouse into a USB Host port of the development board.

In addition, the system supports USB mouse and touchscreen co-existence, and to support hot-pluggable USB mouse and keyboard, you can at the same time to use them. Now let's preview it.

Note: the contents of this section are based on the introduction mini2440 + 3.5" LCD screenshot.

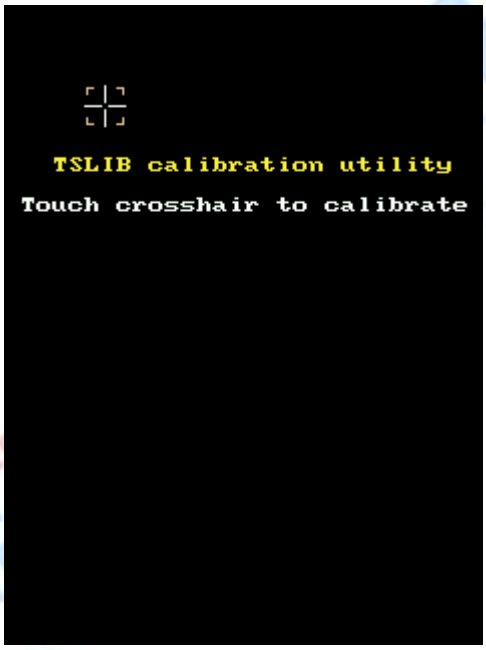
The use of 3.5-inch flat screen, the boot will have the following display appears:

Enable Your Design
ThaiEasyElec.com
On-line Electronics Shop for Embedded System

2.4.1 Touch Screen Calibration

Description: In accordance with the following steps if there is no accurate calibration, you can connect USB mouse, in the "Settings" in the open the "Calibration", and then start all over again. In both cases can be corrected touchscreen interface:

1. If you are in accordance with Chapter 3 of the steps to re-install the Qtopia system, restart the system are as follows first touch correction interface, click on the screen depending on screen prompts to begin tuning in any place; and then follow the screen prompts, the use of touchscreen step-by-step click on the 10-type cross-point can be.



2. Into the system, at "Start > Settings" to switch to the "Settings" interface, and then point the "Calibration" icon will there correction interface; and then follow the screen prompts, the use of touch-screen step by step click on the 10-type cross-point can be.

2.4.2 Main Interface Description

Qtopia system interface as follows.

Qtopia system interface can be seen above there are five icons, which represent the five types of procedures / document, click on any one can enter the icon of the corresponding sub-class interface, and they are similar.

In addition the lower-left corner point of the system interface "Start" icon, you can choose to appear in five sub-category menu, and systems they interface above the corresponding icon is. Interface, respectively, the five sub-categories as follows, according to the title of the name, which means self-evident.

应用程序
VNC
世界时间
今日事项
便签
图片
帮助
应用程序
日历
时钟
照相机
系统信息
终端
10:00
友善之臂
A/D转换
Buttons
CMOS摄像头
EEPROM
LCD测试
LEDs
Ping
USB 摄像头
串口助手
录音机
文件浏览器
浏览器
06:31
游戏
十五子棋
打伞兵
打陨石
扫雷
纸牌
读心术
贪吃蛇
10:00
设置
关机
启动器
声音
外观
安全
应用服务
手写
插件管理器
旋转
日期/时间
电源管理
网络
语言
软件包
重校正
10:00

The "FriendlyARM" grouped all programs are self-development of the FriendlyARM company or transfer from the test so that only with other sub-class of its own procedures or the system.

2.4.3 MP3 Player

In sub-class "application" click "music" icon player interface appears in the "Audio" select list optional an mp3 song file, and then at the top of the "Play" button to begin play Mp3 files.

Note: Audio in the list of audio files corresponding to "Documents" sub-class of all valid audio files.

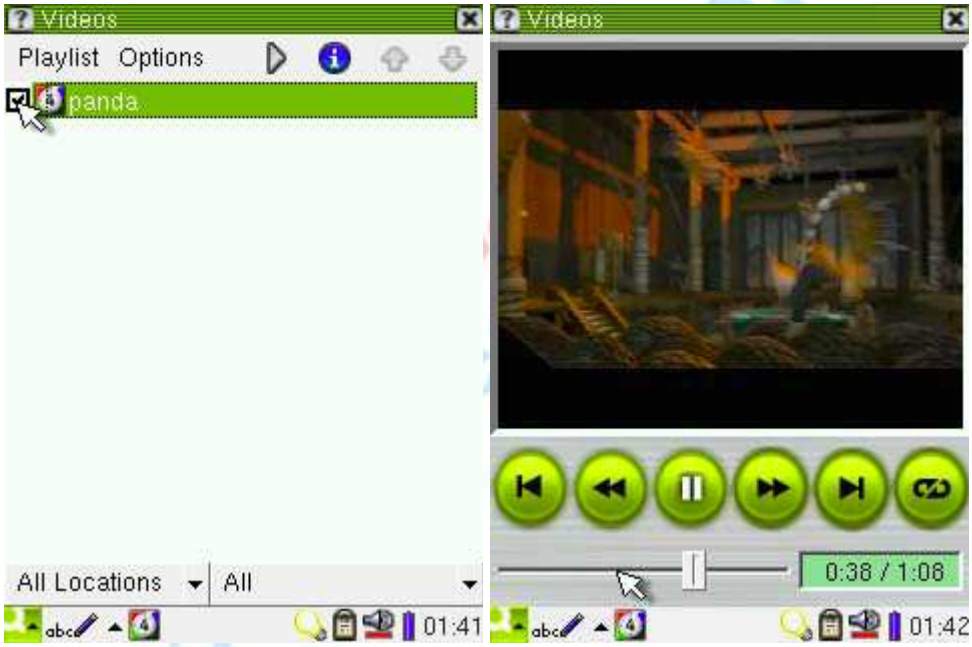
Tip: You can also "Documents" directly by clicking on the appropriate file name to start playing.

2.4.4 Video Player

In sub-class "Application", click "video" icon player interface appears in the "Video" list of selected choose a video file, and then at the top of the "Play" button to start video.

Description: Video in the list of audio files corresponding to "Documents" sub-class of all valid video files.

Tip: You can also directly clicking on "Documents" the appropriate file name to start playing.



2.4.5 Image Viewer

In sub-class "application", click "Photo" icon to open photo browser, view the first thing is the "document" group thumbnail of each picture, if you insert the SD Card containing pictures or USB, which will be a picture file and all show up under the plan is the built-in three pictures, and insert other images containing SD card after the shots.

Qtopia 2.2.0 image system has more improvements than the previous browser Qtopia 1.7.0, it can enter the picture simple line editor, but also more convenient to use, the following description of some simple.

Edit Image

Select a picture, click Open, and then point the pen-shaped Toolbar Edit button to enter the edit state. In the editing state of the color point Toolbar radio button for color adjustments, see the figure below.

Rotating Image

In the editing state, point clockwise toolbar button, you can turn to 90-degree rotating image.

Shear Image

In the editing state of the toolbar at the "scissors" button, then pictures would be "kept" on a light-colored layer of the network, with stylus touch-line in this layer draw arbitrary region of a "rectangular" stylus lifted, painting in the "rectangular" and click the select the region to be out alone, when you can for this constituency other adjustments.

Zoom Image

In the editing state of the toolbar at the "magnifying glass" button, you can achieve the scaling picture, Figure.

Description: picture browser list image files corresponding to "Documents" sub-class of all picture files.

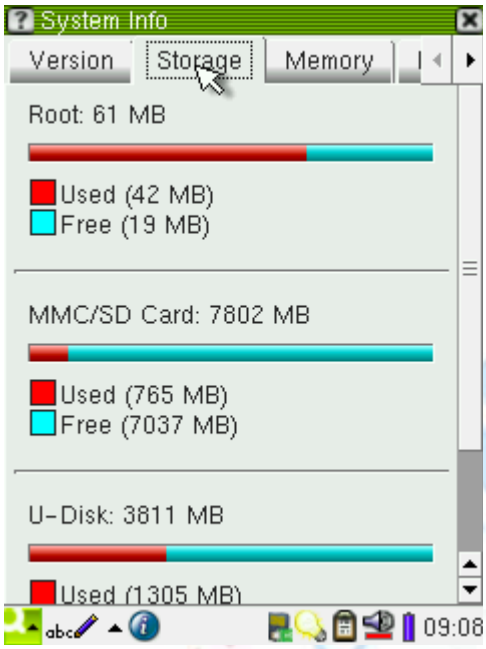
Tip: You can also directly "Documents" by clicking on the appropriate file name to start browsing.

2.4.6 Auto-loading SD Card and USB

Interface in any state, insert the ordinary or high-speed SD Card (measured as the maximum capacity of 32G) or USB mobile deposit storage device, wait a moment, you can appear in the lower right corner of the taskbar icon appears in removable storage, the system supports both mounted at the same time, point of the mobile memory icon appears as shown at this time can be the same as in Windows in the safe to remove them. MMC/SD Card or USB all the files in "Documents" group all show up and support the Chinese filename indicates that it is the directory name does not appear, and if too much of your document, then the list is quite substantial.

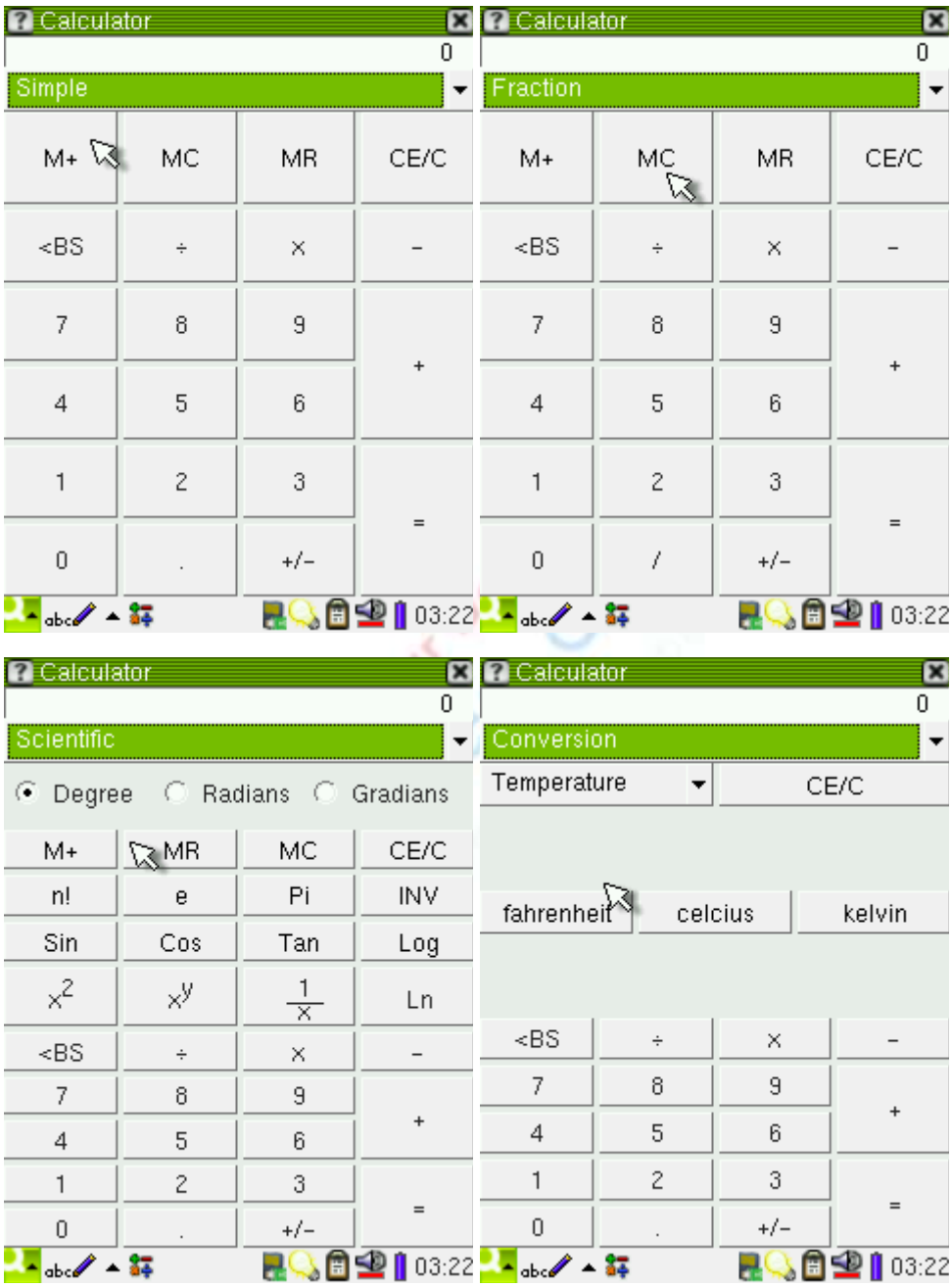
Description: support for MMC/SD Card or USB auto-mounting of the arm through the development of friendly, a Qtopia 2.2.0 Interpolation pieces to achieve, only to identify the current MMC/SD Card or USB first partition, and format for the common VFAT/FAT32/FAT16, if your USB or SD card cannot be identified, please check whether VFAT/FAT32/FAT16 format.

At this time point "Application" group "System Information" > "Storage" can see the SD card and USB capacity letter interest rates in figure:



2.4.7 Calculator

In sub-class "Application" click the "calculator" icon appears calculator interface, a user can drop out select Simple, Fraction, Scientific, Conversion Calculator and other types of figure:



2.4.8 Terminal Command

"Terminal" is a Linux system is usually used in the interactive interface, through the "terminal" can run many Linux command, view system information and so on.

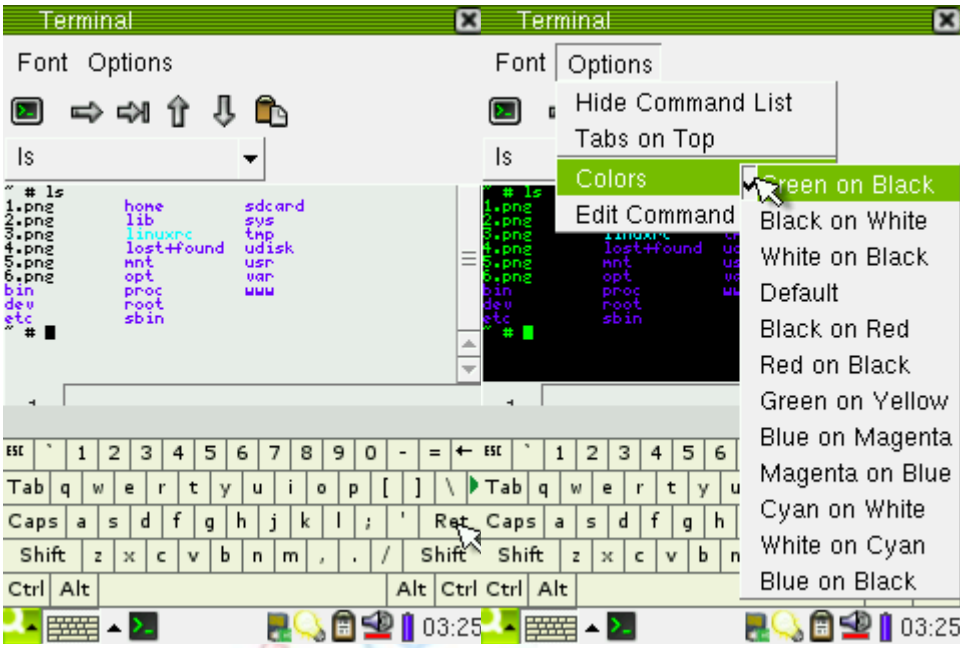
There are many ways you can set or open a "terminal":

Start in the Linux system, they can point to the serial output terminal, so that the formation of a serial terminal, and its input and output are carried out through the serial port, no graphical interface, which is the development of embedded Linux in the most commonly used approach.

In the system, when activated, can also point to the graphic display terminal output device (such as LCD or CRT, etc.), and set the keyboard input, so that the formation of a set of independent "input-output system", it need not use a separate PC that is operational.

When using a graphical display device, and system software to add a graphical user interface (GUI), it can create GUI-based system "command terminal window", then both entities through a standard hardware keyboard interactive, but also through virtual "soft keyboard" interactive, here is about the way this terminal.

In sub-class "application" click "Terminal" icon in the command terminal window appears interface can be connected at this time USB keyboard (not to start before the next USB keyboard, can't be used) or the bottom of the screen using the soft keyboard input Linux command, you can also point in the Option menu to set up some options to change the display mode, shown in figure.



2.4.9 File Browser

In "FriendlyARM" group of the mid-point of the procedure "file browser" icon to open it, and figure:

Through the file browser, you can browse the management board of the directory and files.

Description: Qtopia-2.2.0 is the original version of the browser not to do, and we transplant own Qtopia-1.7.0 in the document management devices, their functions and interface are identical.

2.4.10 Network Settings

In the sub-category "FriendlyARM" process, the point "Network Settings" icon to open the corresponding interface, shown in figure:

Here, you can set up common network parameters:

- static IP address - the factory default to 192.168.1.230
- subnet mask - the factory default is 255.255.255.0
- gateways - the factory default to 192.168.1.1
- DNS server IP - the factory default is 192.168.1.1, and gateway address the same
- Card MAC address - this address through the software by the driver settings can be modified, the development board MAC address of the factory are all the same, in order to 08:90:90:90:90:90

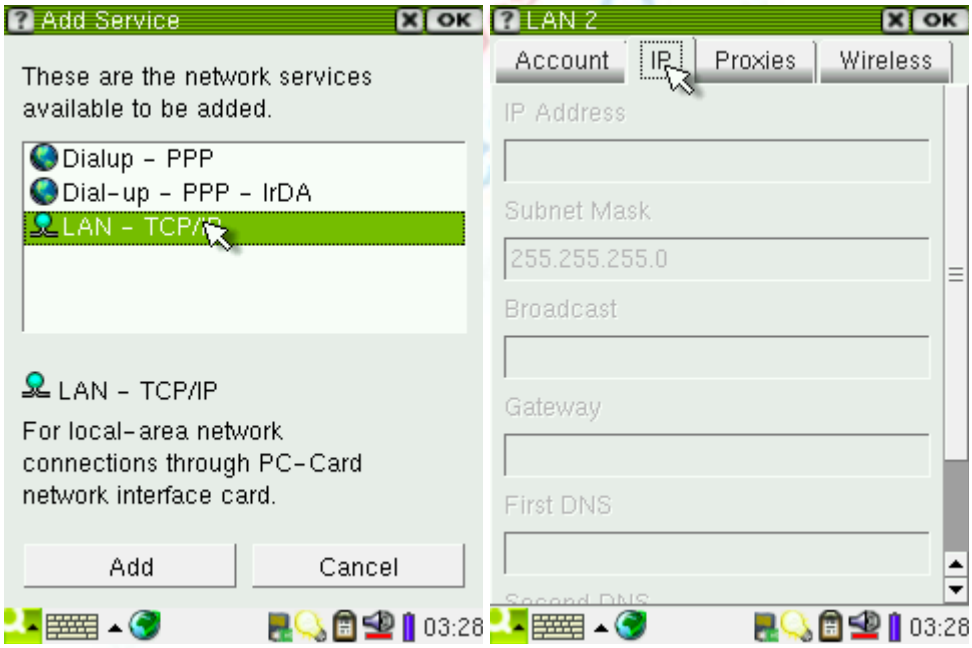
Point "Save" button above parameters can be saved and to come into effect immediately, restart the development board can also be retained in the

Change the settings with the setup program parameters corresponding to the file /etc/eth0-setting

Description: /etc/eth0-setting parameter files in the system after the reinstall does not exist, point "Save" button will automatically Health Into; development board factory to be tested before, so this file is exist. In addition, the terminal command ifconfig procedures change the IP address does not affect the configuration file.

In fact, Qtopia itself with a network set up procedures, but some complicated configuration interface, a user response to its home cannot be effective, in order to maintain the original code of the Qtopia system, we do not have depth testing, so the other self-described above has developed the "Network Settings" procedure.

Qtopia own network interface settings are as follows (Note: the settings may not be effective, the Company does not set up the procedures home to provide advice):



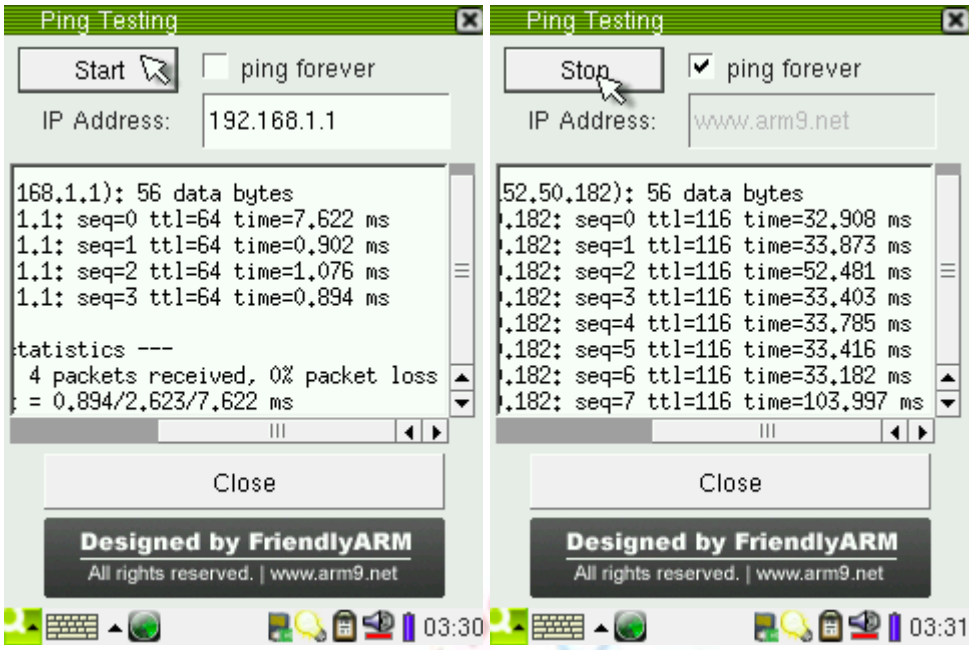
2.4.11 Ping Test

Please connect a good development board attached to the network line, and set up an effective gateway, DNS and other parameters can be passed on graphics ping program interface to test the network connectivity. Sub-class in the process "FriendlyARM" midpoint "Ping Test" icon, hit open the corresponding interface, the following chart:

That have been set up as DNS, and so we can support the number of characters in domain names and IP in two ways. Ping test default 4 times, when the check above the "ping forever", you can always ping; test results are as follows figure.

Important note: the Internet domain name to ping, it is necessary to set up correct and effective gateway and DNS, and ensure that you connectivity of the Internet network really.

Point "Start" button to start the ping, point of "Stop" button to stop ping, to close the "Ping Test" the interface will must stop the ping.



Note: ping is the most common computer system network testing tools, regardless of the various distributions of Linux Department EC, or a variety of MS Windows system, you can enter the terminal command "ping" command. More than "Ping Test" procedures for the actual command line is called the ping, the results are displayed through the graphical interface.

2.4.12 Browser

In "FriendlyARM" program group, point "Browser" to open it, point to open the bottom of the soft keyboard interface, in interface parties enter a URL address bar, and then points on the keyboard "Ret" (enter) button, you can open the corresponding website.

Description: The development board used for the web browser Konqueror/Embedded, it is a source code development browser, the transplantation of specific steps, see Appendix 1 of the relevant Qtopia script (build-all script contains a transplant of the browser all the steps).

2.4.13 LED Test

In "FriendlyARM" procedures for the mid-point "LED test" icon, open the following interface:

Interface can be seen only "Stop led-player" button and effective, it is time to start because the system opens the led-player services, after the boot you see the "light water" effect is controlled by the service, it is necessary to control a separate LED, need to shut down the service, the release of LED resources.

Steps:

Point of "Stop led-player" button, and then it turned into "Start led-player", at the same time all the lights turn off on-board, "LED Control "box all buttons become effective by the gray (diagram below).

At this time point "All On" button to light up all the LED, at "All Off" to turn off all LED, check the left arbitrary edge of a light box corresponding LED, uncheck the box can be left out any of the corresponding LED.

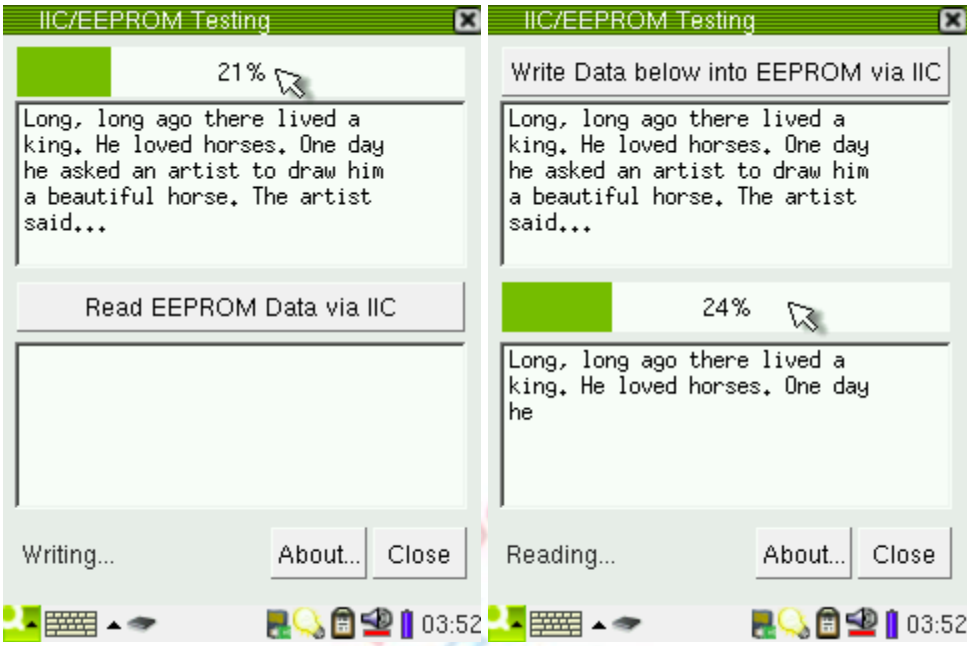
When the closures of “LED test” interface, it will re-open the led-player service.

2.4.14 EEPROM Read and Write Test

In "FriendlyARM" procedures for the mid-point "I2C-EEPROM Test" icon, open the following interface.

Followed by the on to the next can be seen: Write EEPROM button, edit area to write characters, read EEPROM button edit characters read.

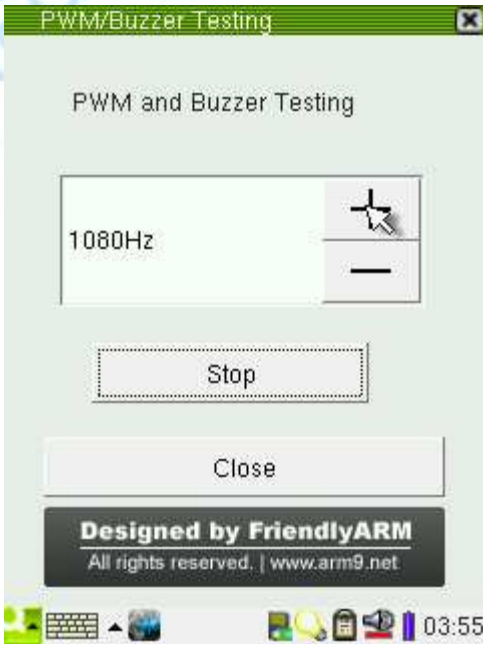
Points on the task bar to open the "soft keyboard" button in the "characters into the edit area" ASC enter some characters, point of "Write Data below into EEPROM via IIC "button, then the button to the progress bar, and the instructions are written into the progress of; point "Read EEPROM Data via IIC" button, then button to progress bar, and the progress of the instructions are read, figure.


IIC/EEPROM Testing
21%
Long, long ago there lived a king. He loved horses. One day he asked an artist to draw him a beautiful horse. The artist said...
Read EEPROM Data via IIC
Writing...
About...
Close
03:52
IIC/EEPROM Testing
Write Data below into EEPROM via IIC
Long, long ago there lived a king. He loved horses. One day he asked an artist to draw him a beautiful horse. The artist said...
24%
Long, long ago there lived a king. He loved horses. One day he
Reading...
About...
Close
03:52

2.4.15 PWM Control Buzzer

In "FriendlyARM" procedures for the mid-point "PWM-buzzer test" icon, open the following interface:

Process of the PWM output for the default 1000Hz, point "Start" button to start the drive buzzer sound, at this time can clicking on the "+" or "-" button to change the frequency of PWM output, but also be able to hear the voice of buzzer output change. Point "Stop" button to suspend PWM output.



2.4.16 Serial Assistant

Tip: when using the program well before you connect the serial port you need to test

- Development board CON1, 2,3 correspond to the CPU of the UART0, 1,2, which have been converted to UART0 RS232 level, and through DB9 socket COM0 output, it has been set to start the final console side and therefore can't directly use the program testing. The other two serial CON2, 3 the need for additional RS232 Converter it can use the PC serial port connection. (The company provided a model for the "OneCom" RS232 converter module block, shown in Figure), to connect PC, note that you are using the serial cable type (cross or direct connection); Whether you are using what kind of serial cable, you can also set the OneCom module according to the actual situation on the COM.2 and COM.3 jumper

- This program also supports the market popular USB-to-serial cable, because the current laptops have not made any serial port, in order to facilitate the development of many of our agents have provided similar re-wiring. The USB-serial cable to development board's USB Host port, you can expand the serial port of the development board. It corresponds to the device name of a as for the /dev/ttyUSB0,1,2,3 and so on, which means that you can more USB Hub expansion of USB-to-serial

In "FriendlyARM" program group mid-point of "Serial Assistants" icon, open the program interface, as shown in Figure:

From the title of the window we can see that the default settings for "ttySAC1 115200 8N1 [C]", it said the default port settings:

- Serial Device: / dev/ttySAC1, it corresponds to the second CPU serial UART1
- Baud rate: 115200
- Data bit: 8
- Flow Control: None
- Stop bits: 1
- [C]: that the character-mode, if [H] is that the 16-band model

The figure above there are two "edit box" area above the "edit box" is used to display the received data, it actually which cannot be edited; following "edit box" by keyboard or USB keyboard to obtain the soft Qtopia input.

Point Connect button to open the serial port development board /dev/ttySAC1, in the window below the edit box enter some of the words Fu, points Send button, and it can be connected to the serial device sends data, the following diagram shows through Windows HyperTerminal data received Screenshots (Note: this corresponds to the serial port terminals should also be set to 115200 8N1).

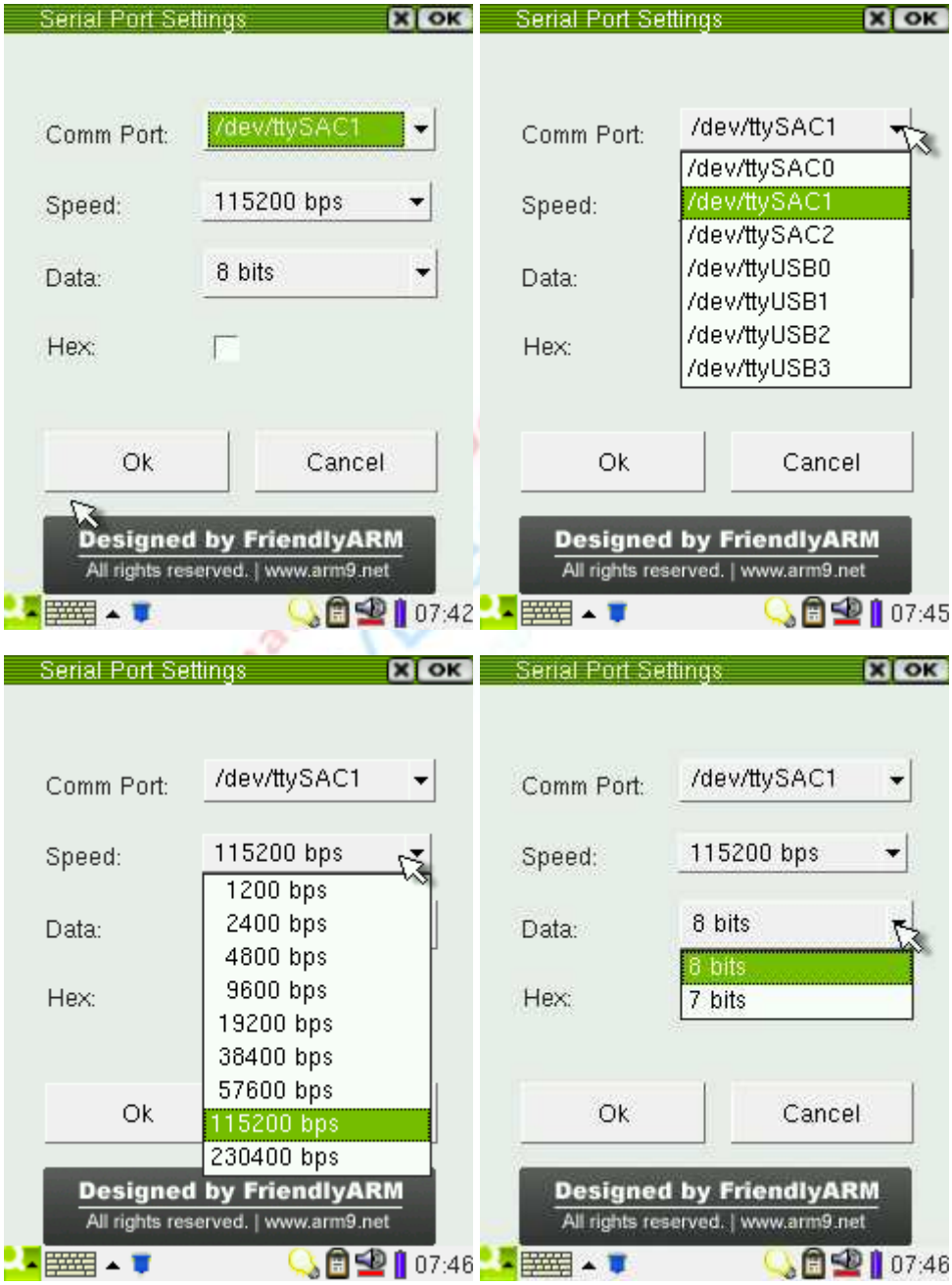
Point Disconnect, and then point Setting ... button to enter the port settings interface, figure in this list of the most some common parameters of serial port settings:

Comm Port: can choose to bring their own CPU's /dev/ttySAC0,1,2 3 serial; USB can also choose to string corresponding /dev/ttyUSB0,1,2,3

Speed: can choose a variety of common baud rate

Data: data bit is to choose 8-bit / 7-bit, 8-bit is common

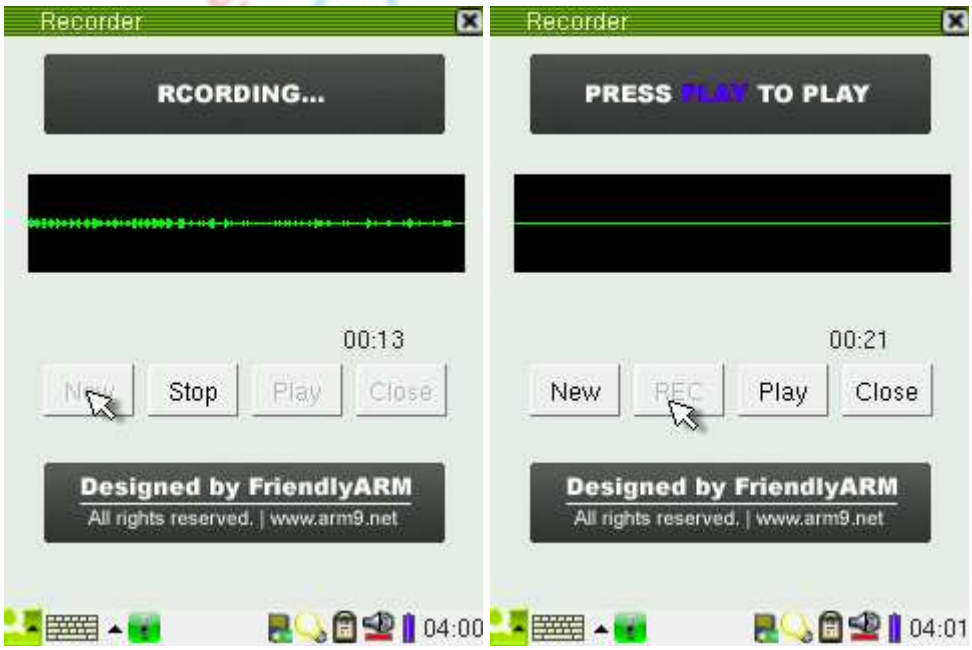
Hex: The band said that the importation of 16 or display data.



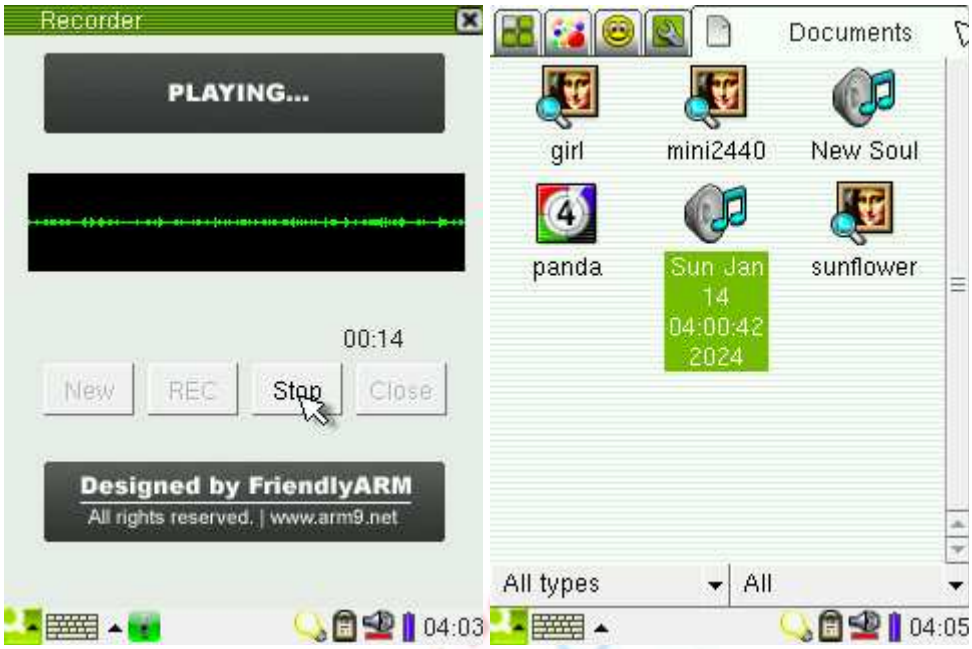
2.4.17 Audio Recorder

In "FriendlyARM" program group, click open the "recorder" program to interface appears as follows:

When prompted, point "REC" button to start recording, then speak into the microphone on the board, you can see recording waveform, points, "STOP" button on the end of the recording, shown in Figure:



Can point at this time "PLAY" button to play just the sound recording, while recording the audio file will be "WAV" format automatically stored to the "document" in:



Description: Qtopia 2.2.0 system comes with a recording process, the Chinese called "voice notes", but it can't be normal the use of on-board microphone for recording, in order to maintain the original code, we did not do any changes.

2.4.18 Use USB Camera to take Photographs

Q: I need to prepare for what types of USB camera?

A: You can buy any model; the latest kernel has been included in universal USB camera driver

The development board camera into the USB Host port, and then in "the arm-friendly" program group, click open the "USB Camera" program, you will see a preview of the dynamic interface, adjustment of focus camera, take a good posture, points under the" Snap " button to take pictures, and photographs will be saved to "Documents" group.

This procedure can also adjust brightness, contrast and gamma value; each camera models in the factory settings the most good value or default, the program will open and read them as a set.

Note: Although the kernel has been included in the universal driver, but the various models of camera output format is different subject to conditions, we can't collect all camera models, the basic procedures for the market can support a variety of common camera model, if you do not support, you can e-mail and contact us.

2.4.19 CMOS Camera Preview

This procedure requires the use of the Company to provide the CMOS camera module CAM130, boot before the camera mode block into the CAMERA interface development board, in "Friendly" program group found "CMOS Camera", click play open it, figure.

Snap button to point to the current dynamic preview photographed, photographed after the Snap button to Continue, click it can continue to dynamic preview, at the same time photos will be saved to "Documents" group (the actual development board at the /root/Documents /image/jpeg directory), in the "document" just click photographs will automatically use the Qtopia "Picture" open figure.

2.4.20 LCD Test

LCD test procedure is to detect whether or not Dead LCD and so, for the development board in terms of learning, can be our greatest do not allow more than 3 dead.

In "FriendlyARM" program group, click the "LCD Test", Figure:

This procedure has two types of automatic and manual test modes:

Auto-loop automatic cycle mode, the implementation of which will be followed by the cycle of full-screen map display red, yellow, white, blue, green, pink, and a total of eight colors, this process, click anywhere on the screen to return to.

Manual-control is the manual mode, after the implementation of each click on a touch screen, it will switch to another color, until the red, yellow, white, green, blue, green, pink, black color to complete a cycle of eight, and then return.

2.4.21 Backlight Control

In "FriendlyARM" program group, click the "backlight control" interface, shown in figure:

Follow the prompts on the screen part of the blue region, any click, you can turn off LCD backlight. Note: This where only the backlight turned off, the system is still among the various procedures (If you squint facing the light LCD, you will see darker interface, this program). In the blue region and then click the backlight will be lit.

2.4.22 A/D Converter

Samsung S3C2440 chip a total of 8 A / D converter channel, but there is only one of its converters. In common design, general AIN4, AIN5, AIN6, AIN7 be used as a four-wire resistive touch YM, YP, XM, XP channel (see chip S3C2440 manual chapter 16-5); the development board led to the remaining AIN0-3, which is located next CON4, see this manual. Chapter 1.3, in order to facilitate the test, in which direct and AIN0 an adjustable resistor connected W1.

How they do share a converter? See the following steps:

In "FriendlyARM" program group, click the "A/D Converter", figure:

Then rotate the on-board adjustable resistor W1, we can see the result of the ever-changing conversion, because it is a precision 10 converter, the conversion value of the hours it will be close to 0, the maximum will be closer to 1024.

When you click on when the touch screen, A/D converter channel will be to choose a touch screen, when the conversion results will be displayed as "-1"

When the touch pen to leave the touch screen, A/D converter board will select a channel AIN0.

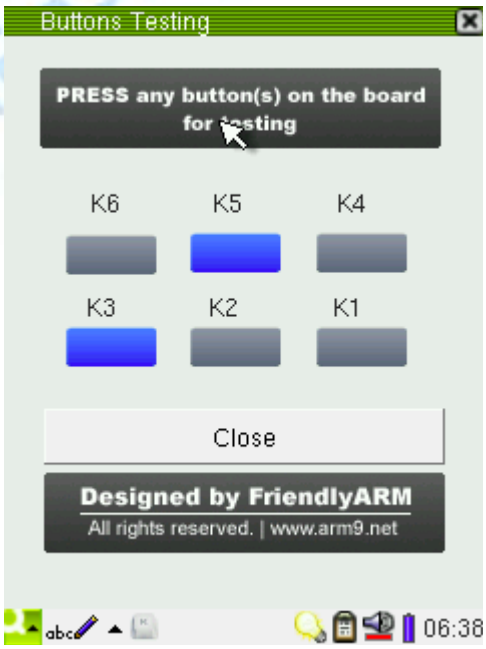
Note: W1 adjustable resistor LCD panels have been covered, the need to remove the LCD panel can be operated.

2.4.23 Key Test

Description: During the development board system, the keys do not have any special features, it is only to test and use the bottom drive.

In "FriendlyARM" program group, click the "Buttons" procedure, in Figure:

At this point the development of on-board press any button (could be more), the corresponding button icon will become blue, after release restore the gray figure.



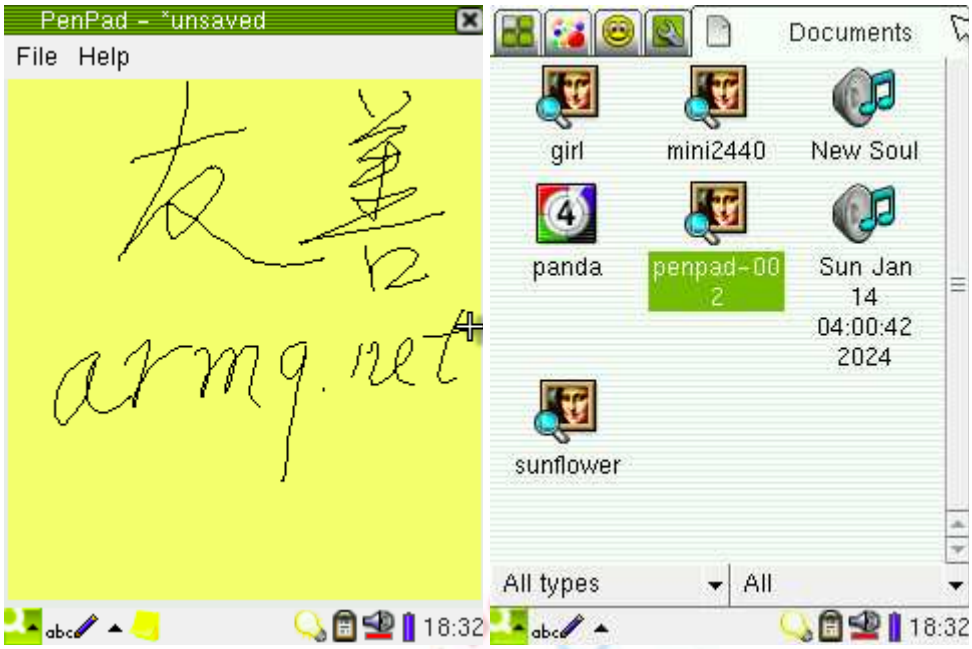
2.4.24 Touch Test

After correction to test the accuracy of touch pen can be anywhere in the LCD on the painting line, as compared with painting went stylus whether there is any deviation line, whether there is jitter, which can be "picked to write" procedures to test.

In "FriendlyARM" program group mid-point of "readily write" icon, open the following interface:

"Ready to write" is by the development of friendly arm of a simple drawing program, it opened a drawing of a light-yellow area, with a touch pen can be arbitrary in the above graffiti (brush color is black, a width of 1 pixel); Point File-> Save can be by painting saved as png image file format (saved: "Documents", in the board position: /Documents/image/png/), the initial document 001, a total of 999 files can be saved.

Can be seen relatively smooth writing, no glitches occur, indicating touch pen is very accurate.

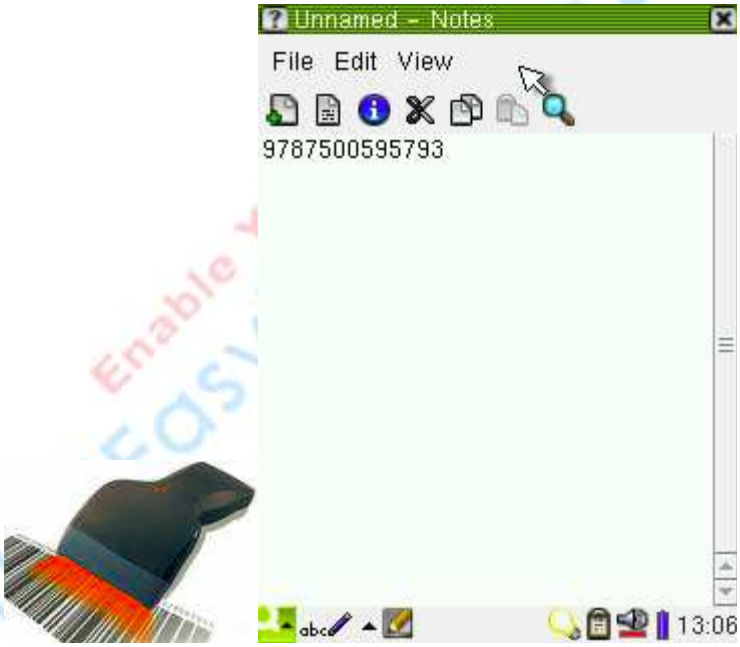


2.4.25 Barcode Scanner

The development board supports the USB interface of the barcode scanner (English name: Barcode Scanner), it is actually a HID devices, like USB keyboard. Therefore, any USB keyboard input for a place, you can direct the use of such Barcode scanners.

Need to pay attention: at present the need to start a graphical interface can be inserted after the normal use USB scanners can't insert in the boot before.

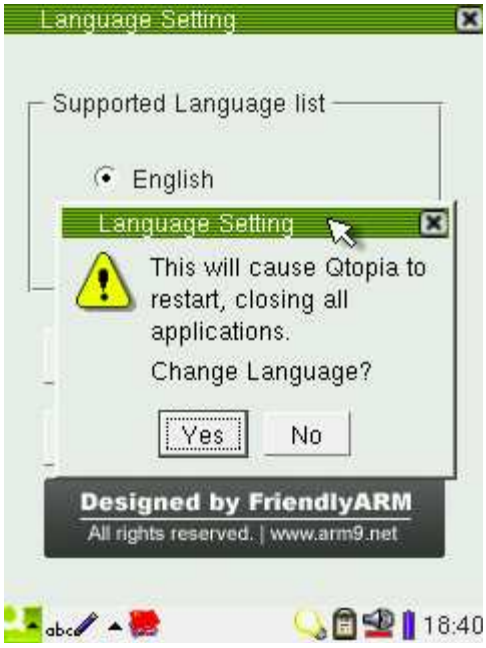
Connect USB scanners, open the "application" of the "text editor", the use of bar code scanner to scan some (Such as single-Express, the journal, and many other goods can be found), we can see the figures were accurate bar code scanning to the Editor.



2.4.26 Language Settings

Qtopia 2.2.0 comes with a "language" settings, and Qtopia 1.7.0 but different, because it is the only English language support, therefore, we re-develop a "language setting", which is located in "the arm-friendly" program group, click to open it.

Currently can choose only 3 kinds of language: English, Chinese, and Japanese. Try to choose "English": point of "English" options, and then point "OK", a message will pop up asking you to change the language, if "Yes", Qtopia system will restart, if the "No" is returned, (Note: Chinese and Japanese versions of the program name is translated), such as figure:


Language Setting
Supported Language list
English
Language Setting
This will cause Qtopia to restart, closing all applications.
Change Language?
Yes
No
Designed by FriendlyARM
All rights reserved. | www.arm9.net
18:40

FriendlyARM
A/D Convert
Backlight
Buttons
I2C-EEPROM
Konqueror
Language Setting
LCD Test
LEDs
Network Setting
Penpad
Ping
PWM-Buzzer
18:41

VNC
13:30

2.4.27 Set the Time Zone - Date - Time - Alarm Clock

The development board at the factory when the date is not accurate, but you can adjust a little bit, since built-in CPU Real-Time Clock (RTC), the development board has a backup battery, so adjust the time after shutdown, they could be "saved" is, of course, this need to support the drive to adjust the time steps are as follows:

Click on the bottom right corner of the taskbar time display area, there will be a menu selection in which the "Set time ...", to open interface set-up time, Figure, in this interface you can set the time zone, adjust the date and time.

In the menu, select "Clock ...", there watches interface, point the "Stop Watch" open "stopwatch" way sequence.

In addition you can also set the alarm clock, figure, clock time, from the audio output can be heard "Didi" sound, it will continued for one minute, and there are interface points "OK" to the end of the alarm sound.

2.4.28 Rotating Screen

In the "Settings" program group points "rotation" icon, enter the corresponding interface, Figure, you can choose four interface spin to the direction of figure.

Choose the direction you want a good point "OK" to return to see the results in figure.

Description: Qtopia sometimes need to restart your system before we can see the effect of rotation, because this procedure is Qtopia built-in, in order to maintain its original code, we do not have to modify it. In addition, the effect of rotation is Qtopia software is now, and with the bottom of LCD driver has nothing to do.

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2.4.29 Set Auto-Run Programs on Boot

"Automatically reboot" allows you to set any built-in procedures Qtopia or Qtopia user's own procedures to run automatically after boot, it just like Windows System "process -> start" feature.

In "FriendlyARM" program group, click the "automatically set up" icon to open it, and figure:

The left side of the figure is to set up a process name, it contains all the Qtopia procedures (including user Qtopia procedures),right out of a list of the status of whether the program has been set to "automatically reboot", the state is the only all-way there can be only a sequence logo.

In the left list, select a program, such as "serial assistant", when it was identified as a state of "Auto Start", point "Save" button, will be out to preserve the success of the prompt, when closing the program, and then restart your system (or reset point "Home>Shutdown>Reboot), can be seen on the serial port after boot assistant has carried out automatically opened.

In addition, it is necessary to abolish the "automatically reboot" procedure, you can point "Clean", then "Close", this will be a dialog box is shown, point "Yes" from the can.

2.4.30 Shutdown

In the "Settings" program group, there is a "shutdown" icon, open it, and figure, which shutdown four options:

Shutdown: Press the button, Linux system will shut down one by one the various procedures and services, until the entire system related closed, when CPU does not work completely, and this time the whole system is the lowest power consumption. Because of this there is no corresponding development board hardware shutdown circuitry, so you can still see the power supply board in the bright lights.

Reboot: This is a "hot" restart button, if you are using the NOR FLASH mode, the system will shut down one by one various applications and services, after the resumption of the menu at the Supervivi mode; If you are using a NAND FLASH mode type, the system will shut down one by one the various applications and services, and then automatically restart the system to re-enter the Qtopia.

Note: Reboot and after the introduction of "watchdog" is an entirely different function, "watchdog" is a "cold" start, it will not shut down one by one the various applications and services, but the resumption of direct reduction.

Restart Server to restart Qtopia is the graphics system, at this time and will not affect the basic Linux system.

Terminates Server refers to the closure of Qtopia graphical systems, graphical interface click on it after a complete failure, and this when the screen is left over from the data in memory; the graphics system is not an effective interface.

In the "Settings" program group, there are a "brightness and power," the icon, because the development board and no corresponding power source management circuitry, so they are also null and void.

Description: the most primitive system Qtopia 2.2.0 source code can't be the effective implementation of "Shutdown" and "Reboot" and we improved.

2.4.31 Watchdog

Watchdog is the embedded system, one of the most common functions, S3C2440 chip watchdog itself with the latest kernel has been included in its drive, and we are now in the application to start it.

Point "FriendlyARM" program group, click open the "watchdog", Figure:

Note that not point to "Start" button, see the red tips:

Once started the watchdog, it can't be stopped, only to keep the fed, or else the system will reset to restart, we set the countdown time is 15 seconds.

The image of that action in order to feed the dog, when the feed the dog, when we threw it a bone to eat, if the point had been "Feed" button, it has been the bone to eat, so that the system does not reset to restart, as figure.